CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

INVESTIGATIVE ORDER NO. R9-2017-0082

AN ORDER DIRECTING CONTINENTAL MARITIME OF SAN DIEGO, THE CALIFORNIA DEPARTMENT OF TRANSPORTATION, AND THE CITY OF SAN DIEGO TO SUBMIT TECHNICAL REPORTS PERTAINING TO AN INVESTIGATION OF SEDIMENT CHEMISTRY IN SAN DIEGO BAY ADJACENT TO CONTINENTAL MARITIME OF SAN DIEGO

The California Regional Water Quality Control Board, San Diego Region (hereinafter San Diego Water Board) finds:

1. **Legal and Regulatory Authority.** This Order conforms to and implements policies and requirements of the Porter-Cologne Water Quality Control Act (division 7 of the Water Code, commencing with section 13000) including (1) sections 13267 and 13304; (2) applicable State and federal regulations; (3) all applicable provisions of statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Water Board) and the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) adopted by the San Diego Water Board, including beneficial uses, water quality objectives, and implementation plans; (4) State Water Board policies and regulations, including Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304,* the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Bays and Estuaries Plan),[1] and California Code of Regulations title 23,[2] chapter 16, article 11, and title 23, section 3890 et seq.; and (5) relevant standards, criteria, and advisories adopted by other State and federal agencies.

2. **Geographic Extent of the Investigation Area.** The San Diego Water Board needs additional sediment data for the area of San Diego Bay (Bay) located within the Continental Maritime of San Diego (CMSD) leasehold bounded on the southeastern side by the leasehold currently occupied by CP Kelco, the eastern side by the San Diego Bay shoreline, and the northwestern side by the leasehold currently occupied by Pacific Maritime Freight, referred to hereafter as the "investigation area" (see yellow shaded area in Figure 1). Additional data are needed to delineate the extent and magnitude of pollutants that are present in the investigation area to determine if cleanup and abatement activities are required to restore the beneficial uses of San Diego Bay.

[1] http://www.waterboards.ca.gov/water_issues/programs/bptcp/docs/sediment/sed_qlty_part1.pdf
[2] In this Order, the term "title 23" refers to the California Code of Regulations from this point forward.

Figure 1. Approximate Investigation Area of this Order[3]

3. **Continental Maritime of San Diego.** The CMSD facility is located on approximately 32 acres of tideland leased from the Port District on the San Diego Bay front (see blue outlined area in Figure 1). The leasehold area is comprised of approximately 14 acres of land located between Cesar Chavez Parkway and Belt Street, and an adjacent offshore area of approximately 18 acres of water. The CMSD facility includes about 351,000 square feet of office, warehouse, and manufacturing building area, almost 700 parking spaces, and several piers.

[3] The approximate investigation area of this Order is shown as the yellow shaded area within the CMSD leasehold boundaries. The yellow shaded area only approximates the investigation area. Investigation may be necessary beyond this area to the north, west, and south to fully delineate the extent and magnitude of pollutants in sediment. Proposed sampling locations may be coordinated with the sediment chemistry investigation that will be conducted to the north of the CMSD leasehold.

Industrial process and storm water discharges from the CMSD facility are currently regulated under Waste Discharge Requirements for Continental Maritime of San Diego Discharge to San Diego Bay, Order No. R9-2015-0009, NPDES No. CA0109142. Discharges from CMSD were previously regulated under San Diego Water Board Order Nos. 87-65, 97-37, R9-2002-0282, and R9-2008-0049.

CMSD is a full service ship repair and modernization facility that began occupying the leasehold in 1987. The CMSD shipyard facility provides a variety of services, including structural repair; sheet metal fabrication; surface preparation (mechanical cleaning and abrasive blasting) and painting; electrical component repair and replacement; machinery overhaul and repair; piping systems repair; boiler repair; bilge/ballast water treatment; acid flushing; lagging and insulation removal and installation; and the overhaul and rigging of shipboard components. Some industrial processes at the facility are exposed or potentially exposed to storm water.

General industrial processes associated with shipbuilding, conversion, repair, and maintenance include metal fabrication, welding and brazing, abrasive blasting, hydrowashing, fiberglass work, paint and coating application, mechanical work, electrical work, wood work (including sanding), chemical cleaning of piping, line heating, and hazardous material and waste storage. Several shipbuilding and repair activities take place over water or near shore locations, while others may be performed in workshops or at work sites located inland on the shipyard property. Potential sources of pollutants include general debris and trash, petroleum wastes, storage and transport of hazardous materials and wastes, metal grinding dust, welding residues, spills of fuel, oil and grease, hydraulic fluid, lubricants, paint and solvents, and abrasive grit particles, paint chips containing metals (copper, lead, zinc, etc.) and paint overspray from grit blasting and painting operations.

From 1987 to 1997, storm water that came into contact with industrial chemicals, materials, wastes, and processes on the CMSD facility likely discharged to San Diego Bay. Beginning in 1997, CMSD reconfigured the facility's surface runoff management system by sealing the storm water outfalls to the Bay, berming the entire perimeter of all industrial areas to hold at least a 5-year, 24-hour storm event (approximately 2.5 inches of rainfall), and diverting surface runoff to storage tanks and to the City of San Diego's sanitary sewer. The reconfiguration was completed in approximately 2000. Storm water from parking areas and administration buildings are discharged to the City of San Diego's municipal separate storm sewer system (MS4) before being discharged to San Diego Bay (see orange square on northern boundary of CMSD leasehold).

Storm water discharges to the Bay from industrial areas only occur in the event that the storm water retention capacity on the facility has been exhausted, or pumps fail to operate. CMSD reports that no storm water has been discharged from the industrial areas of the facility to San Diego Bay since 2000, except a single occurrence in 2004 due to a power failure that prevented the pumps from operating. CMSD recently installed backup power generators to prevent future potential pump failures.

CMSD continues to conduct grit blasting and painting operations in an area close to the Bay (red outlined area in Figure 1). Operations in this area can potentially discharge airborne abrasive grit particles, paint chips containing metals (copper, lead, zinc, etc.), and paint overspray into the Bay.

4. **California Department of Transportation.** The California Department of Transportation (Caltrans) is a State agency that is responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, Caltrans facilities, and related properties. Storm water runoff from areas under Caltrans' jurisdiction to waters of the United States are regulated under *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Water Discharge Requirements (WDRs) for State of California Department of Transportation*, Order No. 2012-0011-DWQ, NPDES No. CAS000003 (Caltrans Permit), issued by the State Water Board. Caltrans was previously regulated under State Water Board Order No. 99-06-DWQ. Caltrans is required to effectively prohibit non-storm water discharges to its MS4 and reduce pollutants in storm water discharges from its MS4s to receiving waters, including San Diego Bay, through implementation of BMPs. The Caltrans Permit also prohibits the dumping, deposition, or discharge of wastes directly to waters of the United States

   Caltrans owns and operates the Coronado Bridge. Construction of the bridge began in 1967 and opened to traffic in 1969. A portion of the bridge spans over the CMSD leasehold and the investigation area (dashed outlined area in Figure 1). Storm water runoff collected in Caltrans catch basins discharges to the investigation area in San Diego Bay through a MS4 outfall owned and operated by the City of San Diego located directly under the bridge. Storm water discharges from the bridge may contain pollutants, including general debris and trash, suspended solids, heavy metals, oil and grease, petroleum hydrocarbons, and polycyclic aromatic hydrocarbons (PAHs), among others from automobiles, atmospheric deposition, and the road surfaces themselves.

   Caltrans is responsible for the maintenance of the bridge, including painting. Painting the bridge requires surface preparation, caulking, and paint application. Historically, surface preparation included abrasive blasting utilizing a copper slag. This surface preparation process discharged abrasive grit particles and paint chips containing metals and possibly polychlorinated biphenyls (PCBs) to the CMSD facility and into San Diego Bay under the bridge.

   San Diego Water Board records include documentation of historical discharges of wastes from bridge maintenance operations to the Bay. CMSD has documented the discharge of abrasive grit particles, paint, metals, concrete chips, and other waste discharges on to their facility and directly into the Bay from Caltrans bridge maintenance and painting operations.[4] Between 1993 and 2003, the San Diego

[4] Documentation, including inspection reports, declarations, and photos, provided as attachments to a letter dated October 13, 1995 from CMSD to the San Diego Water Board.

Water Board received several complaints and issued several enforcement actions for unauthorized discharges of wastes from bridge maintenance operations to the Bay.[5]

5. **City of San Diego.** From the early 1900s through 1963, the City was the trustee of and leased the tidelands around San Diego Bay within its jurisdiction, including the tidelands adjacent to the investigation area, to various operators. While the City was the trustee of the tidelands, the leasehold operators discharged wastes to San Diego Bay, which likely contained heavy metals, pesticides, petroleum hydrocarbons, PAHs, and PCBs, among other pollutants. While acting as trustee of the tidelands, the City also discharged sewage to the investigation area from a municipal sewage treatment plant owned and operated by the City. In 1963, jurisdiction of the tidelands was transferred from the City to the San Diego Unified Port District.

   There are two MS4 outfalls currently owned and operated by the City that discharge runoff to the investigation area (see orange squares in Figure 1). These two MS4 outfalls discharge surface runoff (storm water and non-storm water) collected from drainage areas located within the City's jurisdiction, as well as from Caltrans' jurisdiction.

   Storm water runoff from areas under the City's jurisdiction to waters of the United States are regulated under the *National Pollutant Discharge Elimination Program (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region*, Order No. R9-2013-0001, as amended by Order Nos. R9-2015-0001 and R9-2015-0100 (Regional MS4 Permit). MS4 discharges from areas under the jurisdiction of the City were previously regulated under San Diego Water Board Order Nos. 2001-01 and R9-2007-0001. Pursuant to the requirements of the Regional MS4 Permit, the City is required to effectively prohibit non-storm water discharges to its MS4 and reduce pollutants in storm water discharges from its MS4s to receiving waters, including San Diego Bay, through site inventory tracking, site inspections, and enforcement of its legal authority to require implementation of BMPs.

6. **Presence of Wastes in the Investigation Area.** CMSD has monitored sediment quality since 1987, when it was first issued a NPDES permit. The first sediment samples collected in December 1987 contained concentrations of heavy metals, PAHs, and PCBs. The samples were collected from surface sediments in the offshore area within the CMSD leasehold. Subsequent surface sediment monitoring continued to detect heavy metals, PAHs, and PCBs, as well as polychlorinated terphenyls (PCTs) in Bay sediments within the CMSD leasehold. Sediment chemistry data collected in the investigation area confirms pollutants are present in the bay sediment.

[5] See San Diego Water Board February 10, 2017 inspection report for the Coronado Bridge for a summary of the complaints and enforcement actions related to unauthorized discharges of waste from the Coronado Bridge to San Diego Bay.

Table 1 summarizes the maximum detected sediment chemistry concentrations reported for all sampled locations within the CMSD leasehold through 2014.

Table 1. Maximum Sediment Chemistry Concentrations Reported by CMSD

				Maximum Reported Dry Weight Concentration for Time Period from All Sampled Locations[a]					
Constituent	**Units**	**ERL**	**ERM**	**1987**	**1992-1996**	**1997-2001**	**2002-2006**	**2007-2011**	**2012-2014**
Arsenic	mg/kg	8.2	70	**65**	**26.9**	**16.9**	**22.6**	**30.4**	**15.9**
Cadmium	mg/kg	1.2	9.6	**2**	**4.17**	**3.58**	**2.04**	**2.98**	**1.41**
Chromium	mg/kg	81	370	**330**	**90.9**	**85**	**90.3**	**85.9**	**92.8**
Copper	mg/kg	34	270	**330**	**648**	**434**	**1,790**	**446**	**1,100**
Lead	mg/kg	46.7	218	**105**	**275**	**193**	**274**	**232**	**140**
Mercury	mg/kg	0.15	0.71	**1.07**	**5.08**	**2.33**	**4.83**	**2.08**	**1.96**
Nickel	mg/kg	20.9	51.6	**27**	**46.3**	**24**	**21.3**	**23.8**	**78.5**
Silver	mg/kg	1	3.7	1	**19**	**2.48**	**2.24**	**1.23**	**1.52**
Zinc	mg/kg	150	410	**890**	**1,930**	**3,200**	**1,220**	**988**	**1,000**
TBT	µg/kg	NA	NA	2,000	1150	70.7	47.3	19.5	87.1
Total PAHs[b]	µg/kg	4,022	44,792	**14,991**	**7,544**	**14,952**	**12,836**	**4,805**	1,996
Total PCBs[c]	µg/kg	22.7	180	**4,200**	**11,200**	**1,420**	**1,469**	**1,049**	**2,590**
Total PCTs[d]	µg/kg	NA	NA	NA	28,900	8,780	<846	1,520	3,350

Notes:

a Constituent concentrations reported for 1987 from only 1 location sampled. Concentrations of total PAHs, total PCBs, and total PCTs reported for 1992 through 2014 from 3 of 11 locations sampled. Concentrations of heavy metals and TBT reported for 1992 through 2014 from 11 of 11 locations sampled.

b Concentrations of total PAHs were reported as total PAHs for 1987. Concentrations of total PAHs from 1992 through 2014 were calculated by summing all the concentrations of individual PAHs detected.

c Concentrations of total PCBs reported only as total PCBs

d Concentrations of total PCTs reported only as total PCTs

CMSD: Continental Maritime of San Diego
ERL: Effects Range – Low concentration
ERM: Effects Range – Median concentration
TBT: tributyltin
PAHs: polycyclic aromatic hydrocarbons
PCBs: polychlorinated biphenyls
NA: not available
mg/kg: milligrams per kilogram
µg/kg: micrograms per kilogram
<: not detected above quantitation limit shown
Bold Text: Indicates maximum reported concentration exceeds the ERL
Shaded Bold Text: Indicates maximum reported concentration exceeds the ERL and ERM

7. **Beneficial Uses.** The *Basin Plan* and the *Bays and Estuaries Plan* have the following beneficial uses applicable to San Diego Bay that are threatened or potentially threatened by pollutants discharged from the Dischargers' facilities to the Bay and bay sediments:[6]

   a. **Human Health**

      (1) Commercial and Sport Fishing

      (2) Aquaculture

      (3) Shellfish Harvesting

[6] *Basin Plan* Table 2-3 and *Bays and Estuaries Plan* Table 1

b. **Aquatic Life – Benthic Community**

(1) Estuarine Habitat

(2) Marine Habitat

c. **Aquatic – Dependent Wildlife**

(1) Wildlife Habitat

(2) Rare, Threatened, or Endangered Species

8. **Threat to Human Health.** San Diego Bay is listed in the *Final 2012 California Integrated Report (Clean Water Act Section 303(d) List / 305(b) Report)*[7] as impaired due to the presence of elevated levels of PCBs in fish tissue. The listing is based on 18 out of 18 fish tissue samples from the Bay exceeding the Office of Environmental Health Hazard Assessment's (OEHHA's) fish tissue PCB screening value of 20 nanograms per gram (or 0.02 micrograms per gram). Consumption of fish with elevated levels of PCBs can have an adverse impact on human health. Because of the potential impacts to human health, in 2013 OEHHA published a health advisory and guidelines for fish consumption from San Diego Bay warning of unhealthy levels of PCBs in fish tissue from San Diego Bay.[8] The 2013 OEHHA health advisory was also based on unhealthy levels of mercury in tissue of several of the fish species analyzed. Mercury and PCBs in the sediments within the investigation area are likely one of the sources contributing to the mercury and PCBs found in fish tissue in San Diego Bay.

9. **Threat to Benthic Community.** The reported sediment chemistry concentrations in Table 1 shown in bold text are above the Effects Range – Low concentrations (ERL) for the listed constituents. The reported sediment chemistry concentrations shown in bold and shaded text are above the Effects Range – Median concentrations (ERM) for the listed constituents. ERLs and ERMs are guidelines that have been used to evaluate the potential for adverse effects on the benthic community by a given chemical.[9] At concentrations below the ERL, an adverse effect on the benthic community would be rarely observed. At concentrations greater than the ERL, but below the ERM, it is possible that adverse effects would occur. At concentrations in excess of the ERM, adverse effects are frequently observed. The presence of these constituents within the investigation area detected at concentrations above the ERLs and ERMs in Bay sediments, as summarized in Table 1, create or threaten to create a condition of pollution or nuisance in waters of the State.

[7] http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml

[8] Office of Environmental Health Hazard Assessment, Health Advisory and Guidelines for Eating Fish from San Diego Bay (San Diego County), October 2013.

[9] Long, E.R., MacDonald, D.D., Smith, S.L., 1995, Incidence of Adverse Biological Effects Within Ranges of Chemical Concentration in Marine and Estuarine Sediments, Environmental Management Vol. 19, No. 1, pp. 81-97.

10. **Potential Threat to Aquatic-Dependent Wildlife.** Contact with and consumption of pollutants in sediments by the benthic community and plankton can be transferred through the food web to fish and other wildlife. Concentrations of mercury and PCBs in several species of fish in San Diego Bay have already been identified by OEHHA as a potential threat to human health, likely attributed, in part, to mercury and PCBs in sediments and the potentially impacted benthic community and plankton within the investigation area. The pollutant concentrations in the sediment within the investigation area may not be protective of the benthic community, and can directly or indirectly have an adverse impact on wildlife.

11. **Persons Responsible for the Discharge of Waste.** CMSD, Caltrans, and the City (collectively Dischargers) are responsible for discharges of wastes to sediment in San Diego Bay. As described in Findings 3 through 5, various pollutants originated at facilities owned and/or operated by these parties and were discharged directly or transported to San Diego Bay where they cause, or threaten to cause a condition of pollution or nuisance. Through the course of the investigation, additional information may become available that identifies other persons who discharged wastes to the investigation area. The San Diego Water Board reserves and retains the right to amend this Order to include additional persons.

12. **Basis for Requiring Reports.** Water Code section 13267 provides that the San Diego Water Board may require dischargers, past dischargers, or suspected dischargers to furnish those technical or monitoring reports as the San Diego Water Board may specify, provided that the burden, including costs, of these reports bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

13. **Need for and Benefit of Reports.** Available sediment data has not delineated the extent and magnitude of the pollutants that are present in the investigation area. An assessment of the sediment is needed to determine the extent and magnitude of pollutants in bay sediments and to determine if cleanup and abatement activities are required. Technical and monitoring reports are needed to provide information to the San Diego Water Board regarding the nature, extent, and magnitude of pollutants discharged to San Diego Bay sediments. The reports will enable the San Diego Water Board to ascertain the extent and chemical concentrations in sediment within the investigation area that threaten the benthic community and human health, and potentially threaten wildlife. This information will be used to determine if additional assessments (e.g. sediment triad, bioaccumulation) and/or cleanup and abatement activities are warranted. Based on the nature and possible consequences of the discharges (as described in the Findings above) the burden of providing the required reports, including the costs, bears a reasonable relationship to the need for the reports, and the benefits to be obtained from the reports.

14. **California Environmental Quality Act Compliance.** The issuance of this Order is an enforcement action taken by a regulatory agency and is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) pursuant to section 15321(a) (2), chapter 3, title 14 of the California Code of Regulations. This action is also exempt from the provisions of CEQA pursuant to section 15061(b)(3), chapter 3,

title 14 because it can be seen with certainty that there is no possibility the activities undertaken to comply with this Order will have a significant effect on the environment.

15. **Qualified Professionals.** The Dischargers' reliance on qualified professionals promotes proper planning, implementation, and long-term cost-effectiveness of investigations. Professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under direction of licensed professionals.

16. **Cost Recovery.** Pursuant to Water Code section 13304(c), and consistent with other statutory and regulatory requirements, including but not limited to Water Code section 13365, the San Diego Water Board is entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the San Diego Water Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this or a subsequent Order.

IT IS HEREBY ORDERED, pursuant to Water Code sections 13267 and 13304, that Continental Maritime of San Diego, the California Department of Transportation, and the City of San Diego (collectively Dischargers) must comply with the following directives:

A. **Sediment Chemistry Assessment Work Plan.** The Dischargers must submit a Sediment Chemistry Assessment Work Plan (Work Plan) to assess the extent and magnitude of contaminated sediments in San Diego Bay within and adjacent to the investigation area. The Work Plan must be received by the San Diego Water Board **no later than 180 days after the date this Order is issued**. The Work Plan must include the following:

1. **Study Questions.** Provide study questions that the Dischargers will answer to adequately assess the nature, extent, and magnitude of the contaminated sediments in San Diego Bay within and adjacent to the investigation area. Answers to the study questions will be provided through the implementation of the Work Plan, or through subsequent investigations that may be required by the San Diego Water Board or recommended by the Dischargers, as warranted. The Dischargers may propose any study questions the Dischargers would like to answer by the data to be collected through the implementation of the Work Plan, but the study questions must include, at a minimum, the following:

   a. **Nature and Extent**

      (1) What is the current nature, extent, and magnitude of contaminants discharged to sediments in San Diego Bay within and adjacent to the investigation area?

      (2) If existing data are not sufficient to understand the current nature, extent, and magnitude of contaminants discharged (i.e., a data gap exists), what sampling strategy is needed to fill that gap?

      (3) What activities are needed to identify the data to characterize the nature, extent, and magnitude of contaminants discharged in the area discussed above?

   b. **Potential Sources**

      (1) What are the potential historical and current sources that have discharged or are currently discharging to San Diego Bay within and adjacent to the investigation area?

      (2) If existing data are not sufficient to understand potential historical and current sources, what sampling strategy is needed to fill that gap?

      (3) What activities are needed to identify the data to characterize the potential historical and current sources within and adjacent to the investigation area?

c. **Pathway and Contaminant Transport**

(1) If contaminants and ongoing sources are identified, what are the pathways for contaminant transport to and within San Diego Bay within and adjacent to the investigation area?

(2) If existing data are not sufficient to understand the transport of potential historical and current sources of contaminants, what sampling strategy is needed to fill that gap?

(3) What activities are needed to identify the data to characterize the transport of potential historical and current sources of contaminants to and within San Diego Bay within and adjacent to the investigation area?

2. **Map.** Provide one or more maps of the Dischargers' facilities and/or jurisdiction that discharged or potentially discharged to the investigation area, showing the following:

a. Locations of all current and historic industrial process waste discharge points from the Dischargers' facilities and/or jurisdiction;

b. Locations of all current and historic storm water conveyance features, including inlets and discharge points from the facilities and/or jurisdiction, and any former utilities and floor drain locations if they are, or were connected to the storm water conveyance system; and

c. Locations and information that can be provided on a map, where appropriate, for the Work Plan requirements below.

3. **Historical Waste Discharges Assessment.** Provide an assessment of the potential pollutants that may have been discharged to and/or removed from the Bay, including the following information:

a. For the locations of the current and historic industrial process waste discharge points from the Dischargers' facilities and/or jurisdiction, list all the chemicals, materials, and wastes (including paints, solvents, petroleum products, abrasives, metals, treated woods, etc.) that have been stored or used in the vicinity of the areas that may have contributed to discharges to the investigation area. For each item on the list, include the following information:

(1) The location(s) where the chemical, material, or waste was stored;

(2) The location(s) where the chemical, material, or waste was used;

(3) The known, suspected, and potential pollutants that may be generated from the storage or use of the chemical, material, or waste;

(4) The potential pathways that could result in a discharge of the potential pollutants to the Bay; and

(5) The structural and non-structural best management practices (BMPs) that have been implemented, and the date those BMPs were initiated, to prevent or minimize the discharge of the potential pollutants to the Bay.

b. Descriptions of any operations that occurred near the Bay, and the chemicals, materials, and wastes (including sediments in catch basins) that are known or suspected to have been spilled, aerially transported, or exposed to storm water and discharged or potentially discharged to the Bay.

c. Data collected by or available to the Dischargers for industrial process waste discharged directly or indirectly to the San Diego Bay investigation area.

d. Data collected by or available to the Dischargers for storm water and non-storm water discharged directly or indirectly to the San Diego Bay investigation area.

e. Data collected by or available to the Dischargers for industrial process waste, storm water, and non-storm water discharges diverted to the sanitary sewer system that otherwise would have been directly or indirectly discharged to the San Diego Bay investigation area.

f. Descriptions of known or suspected sources of waste discharges (including materials in buildings and around the facility, and sediments in catch basins) that may have historically contributed, or are currently contributing to pollutants in sediments within the San Diego Bay investigation area.

g. Descriptions of historical dredging projects that removed sediments within the investigation area, as well as future dredging projects that may be implemented within the investigation area.

4. **Existing Monitoring.** Provide a summary of any monitoring that has been and is being conducted by the Dischargers, or known of by the Dischargers in and around the San Diego Bay investigation area, including the following information:

a. Descriptions of any effluent discharge, storm water discharge, non-storm water discharge, Bay water column, and Bay sediment monitoring already conducted;

b. Maps and tables that summarize the results of any effluent discharge, storm water discharge, non-storm water discharge, Bay water column, and Bay sediment monitoring already conducted;

c. Descriptions and summary of any other data, special studies, or monitoring already conducted that may contribute to assessing the physical, biological, and chemical integrity of the San Diego Bay investigation area; and

d. Descriptions of any current and future monitoring programs that are already planned to be conducted within the San Diego Bay investigation area.

5. **Preliminary Conceptual Site Model.** Based on the known and suspected historical waste discharges and existing monitoring data, provide a preliminary Conceptual Site Model that includes the following:

    a. A written and pictorial representation of the historical and current waste discharge scenarios;

    b. A preliminary estimate of the distribution of pollutants within the investigation area, transport and fate of pollutants in the water column and sediment, and the potential receptors and pathways of exposure;

    c. A discussion of existing monitoring data interpretations;

    d. Data gaps identified in the existing monitoring and the preliminary Conceptual Site Model; and

    e. Level of uncertainty in the preliminary Conceptual Site Model based on identified data gaps.

6. **Sediment Sampling and Analysis Plan.** Provide a Sediment Sampling and Analysis Plan (SAP) that includes the following:

    a. Identify on a map all catch basins within the Dischargers' facilities or jurisdiction that are currently or have been historically connected to storm water outfalls that are discharging or have discharged to the San Diego Bay investigation area. Identify the proposed catch basin sediment sampling locations that will be used to characterize potential watershed sources of pollutants and/or contaminated sediments that have discharged or are discharging to the investigation area.

    b. Identify the proposed sediment sampling locations that will be used to determine the current extent, magnitude, and concentration gradients of contaminated sediments in the San Diego Bay investigation area. Proposed sediment sampling locations must be identified on a map, and approximate latitude and longitude coordinates must be provided. Proposed locations must be capable of characterizing the extent of contaminated sediment from the shoreline into the Bay, and at least characterize the magnitude, if not the full extent, of contaminated sediment along the northern, western, and southern boundaries of the investigation area within the Bay. Proposed San Diego Bay sediment sampling locations must be placed as follows:

        (1) Throughout the entire investigation area identified in this Order, spaced at distances that will adequately characterize the nature and extent of sediment chemical constituents and identify areas of potential concern;

        (2) In areas of known or suspected contaminant sources and releases;

(3) In areas where data can be collected to potentially answer the study questions; and

(4) In areas where data can be collected to potentially address data gaps identified in the preliminary Conceptual Site Model.

c. For each proposed San Diego Bay sediment sampling location identified:

(1) At least one sample must be collected from surface sediments in accordance with the *Bays and Estuaries Plan*, sections V.D.1, 3, and 5;

(2) At least one sample must be collected from each one-foot depth interval to at least 5 feet below the Bay sediment surface or until bedrock is encountered; and

(3) Samples collected at depth intervals greater than 3 feet below the Bay sediment surface should be archived as frozen samples, and are only required to be analyzed in accordance with Directive A.6.d if elevated levels of chemical constituents are found in the 3 foot depth interval sample.

d. Sediment samples from catch basins and San Diego Bay must be analyzed in accordance with the *Bays and Estuaries Plan*, section V.H.1, and for the following:

(1) Grain size analysis,

(2) Physical parameters,

(3) Total organic carbon,

(4) Target Analyte List (TAL) Metals,

(5) Pesticides,

(6) PAHs,

(7) Total PCBs (all 209 individual PCB congeners),[10]

(8) Total PCTs, and

(9) Any additional pollutants identified by the Dischargers or the San Diego Water Board for analysis during the development of the Work Plan.

e. If the Dischargers determine additional information (e.g. bioavailability of pollutants) is warranted at this time to fill data gaps in the preliminary Conceptual Site Model or to answer the study questions, include as activities in the Work Plan any additional data collection, special studies, or monitoring that will be included and implemented as part of the Work Plan.

[10] As analyzed and reported by EPA Method 1668.

7. **Quality Assurance Project Plan.** Provide a Quality Assurance Project Plan describing the project objectives and organization, functional activities, and the quality assurance / quality control (QA/QC) protocols for the monitoring to be conducted in accordance with the Sediment SAP.

8. **Schedule.** Provide a detailed schedule of activities for completion of the Work Plan. At a minimum, the schedule must specify the following:

    a. Dates by which the sediment sampling activities for the investigation area are expected to begin and be completed. Sediment samples must be collected within one month of the sediment sampling activities scheduled for the adjacent investigation area to the north the CMSD leasehold;

    b. Dates by which any additional data collection, special studies, or monitoring proposed by the Dischargers pursuant to Directive A.6.e are expected to begin and be completed;

    c. Date by which laboratory analysis of the sediment samples are expected to be completed; and

    d. Date by which laboratory analysis for any additional data collection, special studies, or monitoring proposed by the Dischargers pursuant to Directive A.6.e are expected to be completed.

B. **Implementation of Sediment Chemistry Assessment Work Plan.** The Dischargers must implement the Work Plan in compliance with the schedule in the Work Plan as approved by the San Diego Water Board, unless otherwise directed in writing by the Board. If unforeseen circumstances arise that cause delays, the Dischargers may request modifications to the Work Plan schedule. Any proposed changes to the schedule must be approved by the Board.

C. **Sediment Chemistry Assessment Report.** The Dischargers must prepare a Sediment Chemistry Assessment Report (Report) describing the results from implementing the Work Plan. The Report must be received by the San Diego Water Board **no later than 180 days after the last scheduled activity in the Work Plan is completed.** The Report must contain the following:

    1. **Sampling Locations.** For each sediment sampling location, provide the following information:

        a. Location shown on a map;

        b. Latitude and longitude; and

        c. Depth intervals sampled and analyzed.

2. **Analytical Results.** Provide the results of all analyses performed, and summarize in tabular format and on maps, as appropriate. Provide the laboratory analytical method used for each analysis.

3. **Conclusions.** Provide conclusions for the San Diego Water Board to consider based on the analytical results from implementation of the Work Plan in the context of the Work Plan study questions, historical waste discharges assessment, and data from existing monitoring. The Dischargers must provide data interpretations and study conclusions for which there is agreement by all Dischargers, if any. Each Discharger is also encouraged to provide its own alternative data interpretations and study conclusions for which there is not agreement by all Dischargers, if any, for the San Diego Water Board to consider. The data interpretations and study conclusions must include the following:

    a. Maps and discussion of the sediments with detectable concentrations of chemical constituents analyzed;

    b. Identification of areas that may require additional investigation and/or remedial action;

    c. Updated Conceptual Site Model;

    d. Answers for each of the study questions;

    e. Identification of remaining data gaps in updated Conceptual Site Model; and

    f. Level of uncertainty of conclusions based on remaining data gaps.

4. **Recommendations.** Provide recommendations for the San Diego Water Board to consider based on the conclusions. The Dischargers must provide recommendations for which there is agreement by all Dischargers, if any. Each Discharger is also encouraged to provide its own alternative recommendations for which there is not agreement by all Dischargers, if any, for the San Diego Water Board to consider. The recommendations must include the following:

    a. Criteria for determining where cleanup activities may be warranted;

    b. Changes to the study questions, if any;

    c. Studies or data for filling data gaps in the updated Conceptual Site Model, if any;

    d. Studies or data needed to better answer study questions, if any;

    e. Studies or data that may be needed to determine where cleanup activities are warranted, if any; and

    f. Studies or data that may be needed to establish appropriate cleanup levels, if cleanup is warranted.

D. **Compliance Dates.** The compliance dates for the requirements of this Order are summarized in Table 2.

Table 2. Compliance Dates

Requirement	Compliance Due Date
Directive A - Submittal of the Sediment Chemistry Assessment Work Plan	180 days after the date this Order is issued by the San Diego Water Board
Directive B - Implementation of the Sediment Chemistry Assessment Work Plan	According to the schedule in the approved Work Plan
Directive C - Submittal of the Sediment Chemistry Assessment Report	180 days after completion of the last scheduled Work Plan activity

E. **Penalty of Perjury Statement.** All reports must be signed by the Dischargers' corporate officers or duly authorized representatives, and must include the following statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

F. **Document Submittals.** The Electronic Reporting Regulations require electronic submission of any report or data required by a regulatory agency from a cleanup site after July 1, 2005.[11] The electronic document submittals must be uploaded on or prior to the regulatory compliance due dates set forth in this Order or addenda thereto. To comply with these requirements, the Dischargers must upload to the GeoTracker database. The Dischargers must submit the required documents as follows:

1. **GeoTracker.** All information submitted to the San Diego Water Board in compliance with this Order is required to be submitted electronically to the GeoTracker database (http://geotracker.waterboards.ca.gov/esi) under GeoTracker Global ID **T10000004954**. The Dischargers must upload to the GeoTracker database the following minimum information:

[11] California Code of Regulations title 23, chapter 30, division 3 and title 27, division 3

a. **Reports.** A complete copy of all work plans, assessment, monitoring, and cleanup reports, including the signed transmittal letters, professional certifications, and all data presented in the reports in PDF format, and converted to text searchable format. Reports larger than 100 megabytes (MB) need to be divided into separate files at logical places in the report to keep the file sizes under 100 MB.

b. **Site Maps.** A site map, as a stand-alone document, including notes, legends, north arrow, and other data as appropriate to ensure that the site map is clear and understandable in GIF, JPG, TIF, or PDF formats. When appropriate, the Dischargers should provide required information on multiple site maps.

c. **Laboratory Analytical Data.** Analytical data (including geochemical data) for all Bay sediment and water samples in Electronic Data File (EDF) format.

2. **California Environmental Data Exchange Network.** The Dischargers must also submit the applicable data collected from the implementation of the Work Plan in the appropriate format for upload into the California Environmental Data Exchange Network database (http://www.ceden.org/),[12] or if directed by the Executive Officer, to an alternative State database.

3. **Other Submittals.** The San Diego Water Board may also request hard copy and/or electronic copies on CD or other appropriate media, including electronic mail (email).

   a. **Hard Copies and CDs.** If requested by the San Diego Water Board, the Dischargers must also provide any or all of the following to the Board: a hard copy of the complete document, a hard copy of the cover/transmittal letter, a hard copy of oversized drawings or maps, and an electronic copy (on a CD or other appropriate media) of the complete document.

   b. **Electronic Mail.** If requested by the San Diego Water Board, the Dischargers must also submit a copy (in a text-searchable PDF file) of all documents including signed transmittal letters, professional certifications, and all data presented in the documents to: sandiego@waterboards.ca.gov.

4. **Compliance Determination for Document Submittals.** Upon receipt of the documents, the San Diego Water Board will use the email date and time, upload date and time, and/or receipt date and time to determine compliance with the regulatory due dates specified in this Order.

[12] Check the CEDEN website for information on procedures for submitting data for upload to CEDEN.

G. **Violation Reports.** If the Dischargers violate any requirement of this Order, then the Dischargers must notify the San Diego Water Board office by telephone as soon as practicable once the Dischargers have knowledge of the violation. The San Diego Water Board may, depending on violation severity, require the Dischargers to submit a separate technical report on the violation within five working days of the telephone notification.

H. **Other Reports.** The Dischargers must notify the San Diego Water Board in writing prior to any Discharger's facilities' activities that have the potential to cause further migration of pollutants.

I. **Provisions**

1. **Waste Management.** The Dischargers must properly manage, store, treat, and dispose of contaminated sediments in accordance with applicable federal, State, and local laws and regulations. The storage, handling, treatment, or disposal of sediment associated with the assessment required by this Order must not create conditions of nuisance as defined in Water Code section 13050(m).

2. **Contractor/Consultant Qualifications.** All reports, plans, and documents required under this Order must be prepared under the direction of appropriately qualified professionals. A statement of qualifications and license numbers, if applicable, of the responsible lead professional and all professionals making significant and/or substantive contributions must be included in the report submitted by the Dischargers. The lead professional performing the engineering and geologic evaluations and judgments must sign and affix their professional geologist or civil engineer registration stamp to all plans, technical reports, or documents submitted to the San Diego Water Board.

3. **Laboratory Qualifications.** All samples must be analyzed by California State-certified laboratories using methods approved by the United States Environmental Protection Agency (USEPA) for the type of analysis to be performed.

4. **Laboratory Analytical Reports.** Any report presenting new analytical data is required to include the complete Laboratory Analytical Report(s). The Laboratory Analytical Report(s) must be signed by the laboratory director and contain:

   a. Complete sample analytical reports;

   b. Complete laboratory QA/QC reports;

   c. A discussion of the sample and QA/QC data; and

   d. A transmittal letter that indicates whether or not all the analytical work was supervised by the director of the laboratory, and contains the following statement:

"All analyses were conducted at a laboratory certified for such analyses by the California Department of Public Health in accordance with USEPA procedures."

5. **Analytical Methods.** Specific methods of analysis must be identified in the technical and monitoring reports. If the Dischargers propose to use methods or test procedures other than those included in the most current version of USEPA's "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-486" or Code of Federal Regulations (CFR), title 40, part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants," the exact methodology must be submitted for review and must be approved by the San Diego Water Board prior to use.

6. **Reporting of Changed Owner or Operator.** The Dischargers must notify the San Diego Water Board of any changes in site occupancy or ownership associated with the property described in this Order.

J. **Notifications**

1. **Cost Recovery.** Upon receipt of invoices, and in accordance with instruction therein, the Dischargers must reimburse the State Water Board for all reasonable costs incurred by the San Diego Water Board to investigate discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order and consistent with the annual estimation of work.

2. **All Applicable Permits.** The Dischargers must obtain all permits and access agreements needed to implement the requirements of this Order. This Order does not relieve the Dischargers of the responsibility to obtain permits or other entitlements to perform necessary assessment activities. This includes, but is not limited to, actions that are subject to local, State, and/or federal discretionary review and permitting.

3. **Enforcement Discretion:** The San Diego Water Board reserves its right to take any enforcement action authorized by law for violations of the terms and conditions of this Order.

4. **Enforcement Notification.** Failure to comply with requirements of this Order may subject the Dischargers to enforcement action, including but not limited to administrative enforcement orders requiring the Dischargers to cease and desist from violations, imposition of administrative civil liability, pursuant to Water Code section 13268 in an amount not to exceed $1,000 for each day in which the violation occurs, referral to the State Attorney General for injunctive relief, and referral to the District Attorney for criminal prosecution. The Dischargers are jointly and severally liable for the entire amount of the administrative civil liability. The San Diego Water Board reserves the right to seek administrative civil liability from any or all of the Dischargers.

5. **Requesting Administrative Review by the State Water Board:** Any person affected by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and title 23, section 2050. The petition must be received by the State Water Board (Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812) within **30 calendar days** of the date of this Order. Copies of the laws and regulations applicable to filing petitions will be provided upon request.[13]

Ordered by:

James G. Smith
Assistant Executive Officer

4 Aug 2017
Date

[13] Nothing in this Order prevents the Dischargers from later petitioning the State Water Board to review other future San Diego Water Board orders regarding the San Diego Bay investigation area, including but not limited to subsequent investigative orders and/or cleanup or abatement orders, if any. Upon such petition, the San Diego Water Board will not assert that the Dischargers have previously waived or forfeited their right to petition the San Diego Water Board's action or failure to act under Water Code section 13320. Further, upon such petition, the San Diego Water Board will not assert that the Dischargers are precluded from petitioning for review of future orders by any failure to petition for review of this Order.